

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

(AMENDED COPY)



SPECIFICATIONS AND CLAIMS OF PATENT APPLICATION

Power Cogeneration System And Apparatus Means For Improved
High Thermal Efficiencies and Ultra-Low Emissions

BACKGROUND OF THE INVENTION

*Do not
enter
Sub spec.
TR
10/14/04*

To achieve a goal of significantly reducing a turbine power cogeneration system's ~~mass emission~~ mass flow rate of the "greenhouse gas" (carbon dioxide) by a given percentage amount, it is necessary to proportionally increase the thermal efficiency of a power unit apparatus' conversion of fuel energy to developed mechanical power and useful applied residual thermal energy cogeneration-system which therein proportionally reduces the amount of combusted hydrocarbon fuel required to provide the described energy conversion ~~into a given amount of required work and usefully applied residual heat energy.~~

*New
matter*

It has been well known and practiced for decades that higher humidity air and injected water or steam commingled with conventional air combustion gases increases combustion flame speeds and fuel combustion thermal efficiencies within gas ~~turbines~~ turbine type engines, reciprocating type engines, and other fuel combustion burner apparatus using air/fuel combustion. It has also been well known and practiced that partially re-circulating combustion flue stack gases containing carbon dioxide

Do not Enter Claims.

TR 10/14/04

No claim ~~markers~~
I claim: identifiers

1. A power cogeneration partially-open oxy-fuel combustion cycle method and system having recirculated gaseous thermal fluid and apparatus devices for conversion of hydrocarbon fuel heat-value energy into mechanical energy power and transferable residual exhaust energy for useful purposes, comprising:

(a) a partially-open oxy-fuel combustion cycle method containing a continuously recirculated superheated gaseous thermal fluid;

(b) one or more combustion chamber apparatus assembly or subassembly device wherein temperature controlled oxy-fuel combustion takes place;

(c) one or more integral power engine unit apparatus assembly device wherein hydrocarbon fuel heat-value energy is converted into mechanical power energy and exhaust gas residual energy for useful heating of other gaseous or liquid fluids;

(d) an integral power unit apparatus device therein containing, but not limited to, a recycle gas compressor apparatus assembly or subassembly device, one or more oxy-fuel combustion chamber assembly or subassembly device, and a hot gas expansion power extraction assembly or subassembly device;

(d) two or more alternative power engine unit apparatus assemblies or subassembly devices collectively performing identical energy conversion step functions as those performed within an integral power engine unit apparatus assembly;

(e) one or more heat exchanger assembly devices, wherein

1. a quantity of heat energy is extracted from one cited cycle recirculated gaseous thermal fluid stream and transferred to either one or more other cited cycle recirculated gaseous thermal fluid stream,